



The DU S&T Particles

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Partnering with Industry for an Affordable and Effective Defense

The Dual Use Science & Technology Program Quarterly Newsletter

The First Quarterly Dual Use Science and Technology Program Newsletter

This is the first issue of the quarterly newsletter for the Department of Defense's Dual Use Science and Technology (DU S&T) Program. Through this newsletter, readers will be kept abreast of the activities and schedules of the DU S&T Program to include information on solicitations, conferences, and the latest Program guidance. Each quarter this newsletter will contain feature articles about dual use projects, issues, or guidance. This newsletter and additional program information is accessible on our web page at <http://www.dtic.mil/dust>. Your comments and input are welcome.

What is the DU S&T Program?

The Department of Defense's DU S&T Program is designed to facilitate the use of dual use technologies having both defense and commercial applications. Beginning in the late 1980s, it became increasingly clear that a large and growing number of technologies essential to achieving future military objectives were dual use in nature. Moreover, in many important technology areas, such as communications and electronics, commercial development investments greatly exceeded available defense investments. Successfully tapping these commercial investments could reduce the costs of developing new military systems and provide affordable access to new capabilities. But success required new ways of doing DoD development.

Two Primary Objectives

The DU S&T Program facilitates dual use by leveraging research funds for military technology development with commercial industry in order to reduce the costs of military systems and/or increase the performance of those systems. It was established by section 203 of the National Defense Authorization Act for Fiscal Year 1998 and has two primary objectives: (1) to fund jointly with industry the development of dual use technologies; and (2) to make this approach a normal way of doing business in the Services. In the three years since it was established, over 200 projects have been initiated. Approximately \$600 million dollars -- over

half from industry -- has been invested to develop dual use technologies under this program.

How it Works

The DU S&T Program is run by the Military Services with OSD oversight. Projects are competitively selected and must meet a military need and be commercially viable. Projects must be at least 50% funded by industry. The remaining 50% is funded by the DU S&T Program and the Military Service. The projects are funded through Technology Investment Agreements (TIA) (e.g., Other Transactions and Cooperative Agreements) that allow increased flexibility in assigning technical data rights and business practices. At the beginning of each calendar year a solicitation is issued jointly by the Services. Included in the solicitation are descriptions of topic areas compiled by each Service. An Investment Strategy Conference is held to provide industry an opportunity to meeting with the Technical Points of Contact for the topic areas to further discuss Service needs and to obtain a clearer understanding of the DU S&T Program. The proposals received are then reviewed and evaluated by each of the Services using the selection criteria outlined in the solicitation. Each Service selects projects and announces winners independently of each other.

Program Funding

The President's Budget Request for the FY00 appropriated funds is currently \$55.5M. With the addition of the matching Service funds, the FY00

program could result in over \$110M being available to partner with industry for the development of dual use technology. However, Congressional actions could reduce funds available for the Program.

Program Benefits

The DU S&T Program benefits the Department and Industry by leveraging scarce research funds for developing dual use technologies that will provide military advantages on the battlefield, will improve cost savings, and will lead to increased markets for industry. Through the use of TIAs, the administrative burden of government contracting is eliminated and more flexibility is allowed in assigning technical data rights and business practices. These Agreements have improved the ability of the Department to attract commercial firms that would not otherwise do business with DoD.

Featured Project

A Project of the: U.S. Navy, Office of Naval Research

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CAD-Driven Laser Forming Process May Eliminate Costly Manufacturing Practices

An initiative to evaluate the fabrication of aircraft structural components using a CAD-driven laser forming process will be pursued by the Naval Air Systems Command, Boeing, and Northrup Grumman. This technology is based upon results achieved under an Office of Naval Research (ONR) DU S&T Program.

Three wing components for the F/A-18 E/F have been selected as candidates for laser forming. They are the inner wing splice fitting, the wing fold fitting, and the drag beam support. The cost savings from laser forming these three components is estimated at \$50 million, based on the purchase of 400 aircraft.

Laser forming is a method of layered manufacturing; a process by which complex-shaped compo-

nents are built layer upon layer without the need for expensive tooling or operator intervention. To create the wing components, titanium powder is injected through a coaxial nozzle into a laser beam and is fused onto a substrate. The substrate is moved back and forth, under computer control, in the horizontal plane, and the component is constructed, layer by layer.

An ONR program to establish a science base for layered manufacturing was initiated in 1995. Until that time, structures fabricated from such processes were only geometric representations, not capable of bearing structural loads. The ONR program moved layered manufacturing into the realm of fabricating actual components for use.



*Artist conception of the
laser forming process.*

Illustration courtesy of
AeroMet Corporation

If implemented on an aircraft's structural components, Boeing and Northrop Grumman estimate that laser forming would result in 75 percent reduced delivery time, greater than 20 percent reduced cost for aircraft structural components, reduced material use, and reduced inventory. If all goes as planned, first implementation on production aircraft will be approved in March 2003.

Calendar of Events

- January Topic Areas Finalized
FY01 Solicitation Released
- February Investment Strategy
Conference
- April Proposals Due

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more information and details
www.dtic.mil/dust